SPIXIANA	Supplement 11	161–166	München, 30. Dezember 1985	ISSN 0177-7424

New species of the genera Cricotopus v. d. Wulp and Paratrichocladius Santos Abreu from Himalaya

(Diptera, Chironomidae)

By **Mauri Hirvenoja**

HIRVENOJA, M. (1985): New species of the genera *Cricotopus* v. d. Wulp and *Paratrichocladius* Santos Abreu from Himalaya (Diptera, Chironomidae). – Spixiana, Suppl. 11: 161–166.

Cricotopus adentatus spec. nov., *C. dentatus* spec. nov. and *Paratrichocladius brevicornis* n. sp. are described and the systematic position of each is discussed.

Dr. Mauri Hirvenoja, Sotilaskorventie 13, 01730 Vantaa 73, Finland.

Introduction

From the collections of Zoologische Staatssammlung, Munich, W-Germany, Dr. F. Reiss has kindly sent some specimens of Chironomids from Kashmir, India, most of which are described as new below. One of the specimens, a male from Lake Gangabhal, may be *Paracladius alpicola* (Zett.), but because the best differentation between this and *P. quadrinodosus* Hirv. is to be found in the pupae, the determination is somewhat uncertain. This specimen agrees quite well with the European specimens, but the anal point is stronger.

Cricotopus (Cricotopus) adentatus spec. nov.

Holotype male and allotype female from Lake Gangabhal, 3580 m, Kashmir, India, 14. VII. 1976, U. Gruber leg., in the collection of Zoologische Staatssammlung, Munich, W-Germany.

In so far as is possible to state without the immature stages, this new species is a member of the *tremulus*-group (HIRVENOJA 1973: 184). The chaetotaxy and the coloration agree with other species of this group. The hypopygium of the male resembles that of *Cricotopus tremulus* (L.) (? syn. *C. pedatus* Subl.). The shape of the gonocoxite lobe is, however, more obtuse and the AR lower than in *C. tremulus*. Also, the subapical denticle, typical of *tremulus*, is lacking on the dorsal edge of the gonostylus of the new species. Although the color patterns the female resembles those of *Cricotopus pulchripes* Verr., there are differences in the number of the tarsal sensillae chaeticae, probably in the form of the spermathecae, and also in the length of the flagellomeres. Thus the keys in HIRVENOJA (1973: 185) can be modified as follows:

Males

5 (3) Basal lobe of gonocoxite narrower, either foot-shaped or straight and directed medially 6

6 (7) Basal lobe foot-shaped.
6a (6b) AR > 1; genitalia, fig. 112–5,6 (HIRVENOJA 1973: 192) . . . . . *tremulus* (L.)
6b (6a) AR < 1; genitalia, fig. 1 . . . . . *adentatus* spec. nov.

Females

4 (2) Only ta_2 of p_I light.

4a (4b) Last flagellomere about as long as 3 preceding together. Length of spermathecae about 90 µm. About 40 sensilla chaeticae on the basal half of ta_1 of p_{II-III} . . . . . *pulchripes* Verr.

4b (4a) Last flagellomere shorter than 2 preceding together. Length of spermathecae about 140 µm. About 20 sensilla chaeticae on the basal half of ta_1 of p_{II-III} . . . . . *adentatus* spec. nov.

Description of the holotype male

Chaetotaxy of head and thorax very near that of *C. tremulus* (fig. 111 in Hirvenoja 1973). Head brown. Clypeus with 12 setae; temporal setae 10 on each side of the head. AR 0.60. Length of maxillary palpal segments in µm: 80, 140, 160 and 200.

Thorax darkened; scutal stripes darker than the prescutellar area, shoulders light; acrostichals 9; dorsocentrals more than 20; scutellars more than 10, nearly in one row.

Wings 2.9 mm, quite similar to those of *C. tremulus*. More than 10 setae on squama, 1 on brachiolum and 8 on radius. The coloration of legs about as in *C. pulchripes* (fig. 109 in Hirvenoja 1973): dark brown, except the white middle of tibiae and the white second tarsus of the fore leg, which is narrowly darkened at its apex (similar specimens of *tremulus* are also known from European mountains). Pulvilli not developed. BR of tarsal segments < 3. At least 5 sensilla chaeticae on the proximal part of the basitarsus of the hind leg. LR of fore leg 0.57, middle leg 0.45 and hind leg 0.50. Segments (fe–ta_5) of the legs in µm:

fore leg	930	1170	670	430	280	195	125
middle leg	1050	1040	465	280	195	130	110
hind leg	975	1160	575	325	250	140	110

Abdominal tergites darkened; the first and second hardly lighter than the remaining tergites. Sternites light with longitudinal dark stripes on the first and larger spots on the last. Gonocoxites and gonostyli white. Setal alveoli of the tergites pale with most of the setae distributed near the lateral and hind

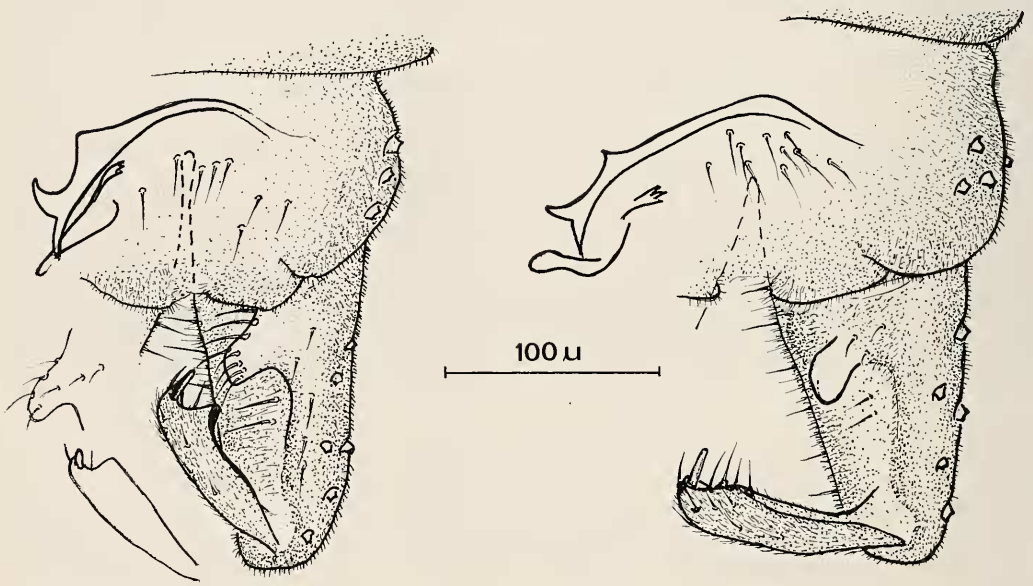

Fig. 1. Male genitalia of *Cricotopus (C.) dentatus* spec. nov. (A) and *C. (C.) adentatus* spec. nov. (B).

margins as most members of the *tremulus* group (fig. 2 A). Hypopygium (fig. 1 B) quite similar to that of *C. tremulus;* however the apex of the basal lobe is less foot-shaped and more obtuse. Anal point absent.

Allotype female

Coloration similar to that of the male but somewhat lighter; prescutellar area and scutellum not darkened. The last flagellomere of the antennae is shorter than two preceding together; length of maxillary palp segments in μm: 60, 120, 130 and 200.

Head and thoracic chaetotaxy: cl 15; 3 verticals and 3 postorbitals in different groups; about 25 a, 30 dc, 8–9 pa and 10 weak scutellars in one row.

Wing length 3 mm; 17–20 setae on squama, 1 on brachiolum, 8–9 on r_1 and 4–5 on the apical end of r_{4+5}. Tarsal setae short, BR ‹ 2; about 20 sensilla chaeticae on the basal half of the basitarsus of the middle and hind legs. LR of fore leg 0.56, middle leg 0.43 and hind leg 0.51. Segments (fe–ta_5) of the legs in μm:

fore leg	915	1195	675	445	280	195	120
middle leg	1050	1055	435	295	195	130	120
hind leg	915	1175	600	335	250	150	110

The genitalia of the usual type for *Cricotopus.* Spermathecae about 140 μm long, probably oval (crumpled in the slide), with a short curved neck.

Cricotopus (Cricotopus) dentatus spec. nov.

Holotype and a paratype, both males, Khalsi, Ladakh, 3000 m, pasture with a brook, Kashmir, India, 9.7.1976, U. Gruber leg., in the collection of Zoologische Staatssammlung, Munich, W-Germany.

According to the chaetotaxy this new species could either be placed in the *reversus* group of the subgenus *Isocladius* or in the *cylindraceus* group of the subgenus *Cricotopus* s. str. Without females [1]) or immature stages it is difficult, with certainty, to determine the subgenus. The LR value of the known European species in the *reversus* group is about 0.50; in the *cylindraceus* group, on the other hand, it is about 0.60. Therefore it seem probable that *C. dentatus* is a member of the subgenus *Cricotopus.* The known species of the *cylindraceus* group have sensilla chaeticae on the middle leg; they seem to be lacking (?) in this leg of the new species. However, this character may be of minor importance.

The new species can be readily recognized by its low antennal ratio as well as the distinctive subapical tooth of the dorsal edge of the gonostylus. The key by Hirvenoja (1973: 214) can be modified as follows:

Males

1 (2) Legs nearly unicolorous.
1 a (1 b) AR > 1; apical part of the dorsal edge of the gonostylus rounded . . . . . *coronatus* Hirv.
1 b (1 a) AR < 1; apical part of the dorsal edge of the gonostylus forming a subapical tooth . . . . . *dentatus* spec. nov.

1) Most females in the subgenus *Isocladius* have (plesiomorphous) humeral setae on the postpronotum. These setae are not identical with those mentioned as humeral setae in the paper of Saether (1980: 11; cfr Osten-Sacken 1881 or Imms 1957: 594). Because the pupae have setae on the same place, they have been called humeral in the paper of Hirvenoja (1973). The humeral setae of Saether might perhaps (if necessary) be referred to as anterolateral dorsocentral setae.

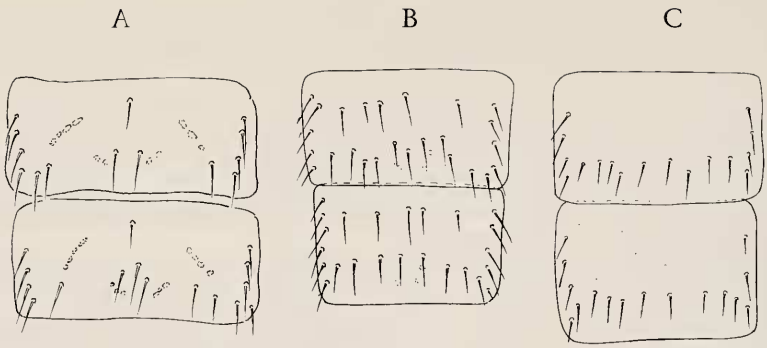

Fig. 2. Tergites III and IV of *Cricotopus (C.) adentatus* spec. nov. (A), *C. (C.) dentatus* spec. nov. (B) and *Paratrichocladius brevicornis* spec. nov. (C).

Description of the males

Head somewhat darkened. With 9–13 setae on the clypeus; the 3–4 inner verticals and 5–7 postorbitals are separated from each other in the temporal row. AR 0.73. Length of maxillary palpal segments in µm: 30–45, 90–120, 90–120 and 170–200.

Thorax light except scutal stripes, scutellum, postnotum, lateral spots and ventral part of the episternum, which are brown. The number of setae: antepronotals 3–4 (?), acrostichals 19–23, dorsocentrals < 24 (?), prealars 3–6, supra-alars 1, scutellars 10–17 nearly in one or two rows.

Wing-length 2.0–2.2 mm; venation similar to other species of the *cylindraceus* group. With 10–13 setae on squama and 4–7 on radius.

Legs nearly uniformly dark without clear light fasciae characteristic of many species of *Cricotopus;* proximal part of femora less pigmented. Tarsal beard of the fore leg short (BR < 2, hind leg < 3–4). LR of fore leg 0.58–0.59, middle leg 0.46–0.47 and hind leg 0.53–0.56. Segments (fe–ta_5) of the legs in µm:

fore leg	585–690	770–920	445–540	295–325	215–230	150–170	105–100
middle leg	630–735	665–770	305–360	195–215	150–160	100–120	85– 95
hind leg	635–760	740–875	390–485	215–270	150–195	105–120	100–105

Abdomen uniformly brownish except the hind margins of the last segments (sternites not visible). More than 20 setae on the tergites III and IV as in fig. 2 B; the chaetotaxy resembles that of the *cylindraceus* group. Hypopygium (fig. 1 A) dark, without an anal point. Gonocoxite lobe simple, somewhat parallelogram-shaped or conical. (The degree of projection is a function of mounting position.) Gonostylus with a characteristic subapical tooth on the dorsal edge.

Paratrichocladius brevicornis spec. nov.

Holotype male from the Lake Gangabhal, 3580 m, Kashmir, India, 14.7.1976, U. Gruber leg., in the collection of Zoologische Staatssammlung, Munich, W-Germany.

Because of its coloration this new species resembles some species of *Cricotopus.* The dorsocentral setae are also not very long; they are, however, arising from distinct pale alveoli as in other species of *Paratrichocladius;* and the hypopygium is similar to that of *P. rufiventris* (Meig.). The new species differs from *P. rufiventris* in the coloration of the legs, the AR, and the chaetotaxy of the abdomen.

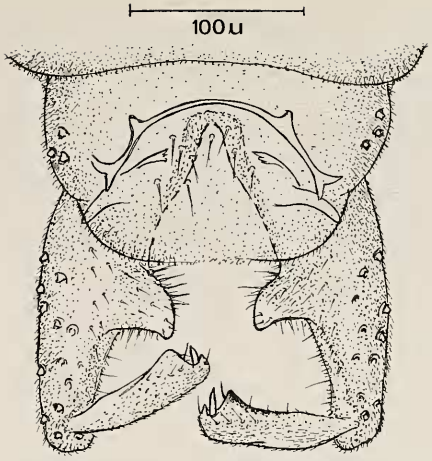

Fig. 3. Male genitalia of *Paratrichocladius brevicornis* spec. nov.

Description of the holotype male

Head brown. Clypeus with 10 setae, verticals and postoculars nearly in one row of 9–10 setae. AR 0.62. Length of maxillary palpal segments in µm: 45, 100, 110 and 200. Thorax darkened; scutal stripes darker than the prescutellar area. The number of acrostichals probably more than the 7 which are visible; dorsocentrals 8–9, arising from large pale alveoli; 3 prealars present, but supra-alars apparently lacking; scutellum with 9 quite weak setae nearly in one row.

Wing length 2.5 mm; squama with 5, brachiolum 1 and radius with 3–4 setae. Knob of halteres pale.

Legs brown with a broad, pale fascia on each tibia, especially in the fore leg; also the bases of the femora pale. Pulvilli absent. BR < 2. LR of fore leg 0.56, middle leg 0.45 and hind leg 0.49. Segments (fe–ta_5) of the legs in µm:

fore leg	695	845	480	305	215	130	85
middle leg	825	835	380	240	185	120	95
hind leg	825	980	480	280	230	130	105

Abdominal tergites darkened. Tergites 3 and 4 with 16 setae, which occur only on the hind and lateral margins of the tergite (fig. 2C). The row of basal setae, which in *P. rufiventris* is usually present, is lakking in this species; in *P. rufiventris* these setae are about 100 µm long, while in *P. brevicornis* in contrast they are only 50 µm. The hypopygium (fig. 3) resembles that of *P. rufiventris*.

Acknowledgements

I wish to thank Professor James E. Sublette for checking the English language of this paper.

HIRVENOJA, M. 1973: Revision der Gattung *Cricotopus* van der Wulp und ihrer Verwandten (Diptera, Chironomidae). – Ann. Zool. Fennici **10**: 1–363

IMMS, A. D. 1957: A general textbook of entomology, including the anatomy, physiology, development and classification of insects. – 9. ed. London, 886 pp.

OSTEN-SACKEN, C. R. 1881: An essay on comparative chaetotaxy, or the arrangement of characteristic bristles of Diptera. – Mitt. Münchener Entomol. Ver. 1881: 121–138

SAETHER, O. A. 1980: Glossary of chironomid morphology terminology (Diptera: Chironomidae). – Entomologica Scandinavica Suppl. **14**: 1–51